

CLAIMS

1. Method for analysing the hydrocarbon composition of homogeneous geological strata through which a well drilling system extends, the drilling producing an effluent, wherein a summary of the contents of a plurality of gaseous hydrocarbons is carried out at various successive depths, the method comprising at least:

- establishing, at a substantially identical depth, a plurality of gaseous hydrocarbon content ratios, in pairs, for at least one depth range;
- selecting, from this plurality of ratios, a sub-group of reference ratios in order to constitute a signature which is representative of the gaseous hydrocarbon composition of the effluent in the at least one depth range, the signature being formed by at least one straight line which is taken from a group of straight lines, each straight line having a given inclination value representing the content of a first gaseous hydrocarbon relative to the content of a second gaseous hydrocarbon,
- comparing the signature with reference signatures in order to determine the hydrocarbon content of the geological stratum corresponding to the at least one depth range.

2. System for analysing the hydrocarbon composition of homogeneous geological strata through which a well drilling system extends, the drilling producing an effluent, the analysis system comprising at least means for analysing the contents of a plurality of gaseous hydrocarbons of the effluent and means for storing these contents in accordance with the drilling depth, the analysis system further comprising calculation means which are connected to the storage means and which are capable of calculating a

plurality of gaseous hydrocarbon content ratios at a substantially identical depth, and means which are capable of displaying the plurality of ratios in the form of a plurality of graphs, each graph representing the content of a first hydrocarbon in accordance with the content of a second hydrocarbon for at least one depth range, at least one of the graphs from the plurality of graphs representing a signature of the geological stratum for the depth range, characterised in that each graph of the signature is illustrated by a straight line having a given inclination value.

3. Analysis system according to claim 2, characterised in that the display system can further superimpose the graphs corresponding to at least two homogeneous geological strata.

4. Numerical data structure recorded on a storage medium for implementation by a computer, characterised in that it comprises numerical values of at least a pair of contents of gaseous hydrocarbons, the numerical values being represented on a straight line having a given inclination value corresponding to a depth range and being representative of the signature of a geological stratum.